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ABSTRACT

Teachers from the Austin Independent School District were identified as providing exemplary instruction to elementary Hispanic limited English proficient (LEP) students based on a comparison of predicted versus actual achievement scores in reading, language, and math. Predicted performance was based on equations generated by stepwise linear regressions in which the following predictor variables were available: the previous year's performance in reading, language, and math and their interactions, and the student's entry level of oral English and Spanish and their interaction. The analyses identified 12 teachers whose average Normal Curve Equivalent (NCE) residual gain scores were positive in reading, language, and math. Only second and third grade teachers met the pre-established criteria. In addition to identifying exemplary teachers of LEP students, it was planned that the subsequent year's evaluation would attempt to isolate characteristics of the teachers identified that may account for their success. (Author/BW)

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IDENTIFICATION OF EXEMPLARY TEACHERS OF LEP STUDENTS

1984 AERA CONVENTION, NEW ORLEANS

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ABSTRACT

Identification of Exemplary Teachers of Limited English Proficient Students

Teachers were identified as providing exemplary instruction to elementary Hispanic LEP students based on a comparison of predicted versus actual achievement scores in reading, language, and math. Predicted performance was based on equations generated by stepwise linear regressions in which the following predictor variables were available; the previous year's performance in reading, language, and math and their interactions and the student's entry level of oral English and Spanish and their interaction.

The next task, which has not yet begun, is to idenify characteristics of these teachers that may account for their accomplishments.

Introduction

The objective of this study was to identify teachers who are particularly effective in teaching limited English proficient (LEP) students. Success was measured in terms of actual achievement test scores versus predicted achievement of their LEP pupils. The findings are based on an analysis of residual gain scores of each teacher's LEP students in three areas; reading, language arts, and math. Predicted performance in these areas was based on equations constructed via stepwise linear regressions. To be identified by this process, teachers had to be exceptionally successful in promoting their LEP student's achievement in reading, language arts, and math as measured by the Iowa Tests of Basic Skills (ITBS). They may be bilingually certified or not. What is important is that they are successful. The next task, which has not been started yet, is to identify characteristics of these teachers that may account for their accomplishments. It is assumed that the ability to identify exemplary teachers will provide a basis for enhancing programs that serve LEP students. If there are characteristics of the learning environments created by these teachers that are replicable, schools can promote better achievement for LEP pupils by encouraging the establishment of such environments.

Procedures

The following steps outline the process used to identify "exemplary" teachers.

- A file of LEP pupils, grades 2-6, was constructed containing the following Normal Curve Equivalent scores; reading, language arts, and math of the ITBS districtwide testing from the 1980 (pre) and 1981 (post), 1981 and 1982, 1982 and 1983 school years respectively. Student identification number and name, associated teacher, grade, and original English and Spanish oral language test scores were added to each record.

- Stepwise regression procedures were applied to the file to construct equations for predicting post-scores in reading, language arts, and math achievement from previous achievement and oral language test information. Pre-scores in reading, language arts, and math and their interactions and the students' original English and Spanish oral language test scores and their interaction accuracy of prediction, NCE pre- or post- scores of 1 were eliminated from the prediction equation derivations.

- Using the equations, predicted scores were calculated and used to determine residual gain scores.

- Residuals (actual score - predicted score) were derived and average residual scores were constructed for each teacher with five or more associated LEP pupils. This process identified 213 teachers. The average residuals for each teacher were then ranked from highest to lowest in reading, language arts, and math.

- For a teacher to be identified as "exemplary" in teaching LEP students, the following additional criteria had to be met:

  - The teacher must have had at least eight LEP student NCE scores associated with their average residual score.

  - The teacher's average residual score had to be positive in each of the academic areas considered, reading, language arts, and math.

- The possibility of anomalies in testing was explored for those teachers identified as "exemplary" by examining student achievement patterns during the year following the students' instruction by the "exemplary" teacher. If anomalies occurred that artificially inflated the students' scores, we would expect many of the students to show regressions in their subsequent year's achievement scores. No anomalies were detected.

- A listing of exemplary teachers was constructed indicating their name, grade, school, the number of LEP students associated with the teacher who took the districtwide achievement test, bilingual endorsement, and the associated average NCE residual gain scores in reading, language, and math. Figure 1 provides this information with name and school removed.

Analyses

The following regression equations were generated via the stepwise process of the Statistical Package for the Social Sciences (SPSS).

RDPOST = 12.72 + .538 RDPRE + .00186 MLI

MAPOST = 18.98 + .569 MAPRE + .00323 RLI - .00264 RMI

LAPOST = 30.78 + .00550 RLI + .00220 MLI

Where MLI is the interaction of math and language.
RMI is the interaction of reading and math.
RLI is the interaction of reading and language.

XXPOST is the predicted posttest score. XX = RD, LA, or MA

These equations were used to calculate predicted achievement scores. Residual scores (actual - predicted score) were generated from these and teacher averages were derived in reading, language, and math. Ranking of each of these areas provided the basis for further analysis. The criteria outlined in the procedures section for identifying exemplary teachers was applied.

Findings

The analyses* identified 12 teachers whose average NCE residual gain scores were positive in reading, language, and math. Average residual gain scores ranged from .84 to 12.14 in reading, .42 to 15.07 in language, and .35 to 14.8 in math. The number of LEP students associated with these averages ranges from a low of 8 to a high of 17. Only second and third grade teachers met the pre-established criteria. The fact that those grades have more LEP children in them may account in part for this phenomenon. Achievement gains after third grade may also be more difficult to attain.

In addition to identifying exemplary teachers of LEP students, next year's evaluation will attempt to isolate characteristics of the teachers identified that may account for their success.

A correlation matrix of the various measures of the study is provided in Figure 2.

Original English and Spanish oral language test (PAL) scores provide no predictive power above and beyond that available through the pretest achievement scores in reading, language, and math. Thus, these variables prove to be of little value in predicting future academic achievement.

Teacher	Bilingually Endorsed	Grade	# LEP In Average	Average NCE Residual Gain: Reading	Language	Math	Total
# 1	Yes	2	10	7.57	7.42	14.71	29.70
# 2	Yes	3	17	4.33	15.07	9.63	29.03
# 3	Yes	3	8	7.26	4.75	14.81	26.82
# 4	Yes	3	14	6.64	8.82	7.35	22.81
# 5	No	2	11	1.02	4.20	11.43	16.65
# 6	No	2	15	12.14	1.76	2.15	16.05
# 7	No	3	9	2.38	11.29	2.05	15.72
# 8	Yes	2	15	3.88	4.95	6.69	15.52
# 9	No	3	9	3.23	6.11	4.52	13.86
#10	No	2	9	3.30	1.08	7.23	11.61
#11	Yes	3	15	0.84	8.04	0.35	9.23
#12	No	3	10	1.28	0.42	2.45	4.15

Figure 1: Exemplary Teachers of LEP Students

*Caution, many children who are Spanish dominant do not have ITBS achievement scores and thus are not included in the data used to identify "exemplary" teachers of LEP students.

	MAPOST	RDPOST	LAPOST	MAPRE	RDPRE	LAPRE	OEPAL	OSPAL	RMI	RLI
RDPOST	.48									
LAPOST	.50	.75								
MAPRE	.55	.42	.40							
RDPRE	.31	.69	.57	.47						
LAPRE	.34	.57	.59	.45	.72					
OEPAL**	-.05	.22	.14	.02	.29	.22				
OSPAL**	.02	-.14	-.10	-.01	-.22	-.16	-.40			
RMI**	.48	.65	.57	.81	.85	.67	.19	-.14		
RLI**	.36	.68	.63	.49	.91	.89	.26	-.19	.84	
MLI**	.51	.57	.58	.82	.69	.83	.14	-.10	.89	.83

Figure 2: CORRELATION COEFFICIENTS ASSOCIATED WITH THE EXEMPLARY TEACHER ANALYSES

**OEPAL = Original English proficiency test
OSPAL = Original Spanish proficiency test
RMI = Reading and math interaction
RLI = Reading and language interaction
MLI = Math and language interaction